European Research Studies
Volume VIII, Issue (3-4), 2005

The Way a Third Generation Port Can Boost Local Employment: The Case of Piraeus

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Abstract

This paper starts with a presentation of the three generation of Ports within increasing emphasis to the two latest practical models (1960-1980 and 1981 – today). The third generation of ports maintained of course the traditional services, but had to offer different administrative and commercial ones, new services towards the protection of environment and distribution services. Successful ports had to understand their new role in the logistics chain, including information flow. The old model where ports were monopolies/ points in space due to the exclusive dual combination of sea-port-sea changed radically as logistics' idea and network, emerged, investing also on other means of transport. Then we dealt with the Port of Piraeus (PP) case, with a historical analysis, its deregulation in 1999, and its traffic. Then I have examined in detail per service offered, the port's impact on local employment and on number of enterprises. The employment provided is round the 33.000 persons in 2100 companies but on an historical diminishing fashion. Something happened also internationally in all the third generation ports (ports handling containers). The underlying idea however is that container traffic and container terminals are the least in helping employment in the local economy. Finally, I run certain regression to find out the correlation between country's population, GDP, Seaborne GDP, economic active population and port of Piraeus traffic.

Keywords:

Generations of ports, port activities, employment impacts.

1. The Contribution of Ports to Local Economic Development

We can say that historically ports depending on their role and their activities contributed sometimes more sometimes less to the economic development of the area in which they were situated.

1.1 Generations of ports and the local economic activities.

1.1.1 The first – generation ports (up to 1960).

Until 1960 the ports constituted mere places of access from the sea to the shore. The main activities that were carried out at ports were the loading and unloading of cargo.

1.1 2 The second - generation port (1960-1980).

Ports of this generation assumed the role of becoming centers of transport. The scope of action for the port activities apart from the loading and discharging is extended to commercial or other relevant services, such as packing of consignments but also the development of the industrial production. The second-generation ports develop cooperation with commercial partners as well as the municipality to which they belong as they have greater need of the city, which provides them with various services (UNCTAD, 1992).

It has been supported that the establishment and the development of industry at ports have the greatest impact on the economic growth of the local community. In the area around the port there can develop industries that have to do with the vessel itself, vessel building, vessel repairs, scrapping, as well as industries that have to do with cargo handling.

Several efforts have been made in the past for the classification of the industries that are attracted by the port. A simple distinction can be made between the industries that are drawn by the port because they use raw materials that are imported en mass by it and the industries that are drawn by it because it is a population center and because of that it constitutes on its own a consumer market. In the first category fall the refineries, big factories for metal processing, chemical industries, cement /paper mill/cereal factories. In the second category belong the tobacco factories, the food and clothing industries.

During this period the combination of the sea-shore elements gave development to the so called Maritime Industry Development Areas (MIDA). The development of these areas was attributed to:

- the increase of the oil, iron and steel industries,
- the need for more and more quantities of raw materials (bulk cargoes),

- the demand for the sea transport to take place with the biggest possible vessels so that economies of scale are achieved.

These coastal areas of industrial development were associated with the revolutionary changes in sea transport (adoption of VLCC and ULCC vessels, as well as the gigantism of the bulk carriers) with the aim of reducing the cost of raw materials. In this way, basic conditions for the development of the MIDA are the deep waters, the large warehousing areas, areas for the establishment of factories and the well-organized land transport system.

The first generation of the MIDA based on the "RINOS" model in Rotterdam (1958) where an industrial and port development started. The area towards the sea via the Euro port and the Maasvlakte was used, with emphasis on emphasis on oil distillation and on petrochemicals. A similar plan for Antwerp (1955-1965) was interrelated with new refineries with a wide spectrum of chemical and petrochemical industries and vehicle construction industries. In France, too, the port plan of 1965-1970 caused a large scale growth for the iron and steel industries, in refineries and petrochemical (Dunkirk), also in refineries, chemical, metal processing, wood processing and vehicle construction (Havre), iron, steel, oil and chemical industries (Fos). In Japan the big industrial development and the increasing need for importation of all the basic raw materials and fuel led to port development planning for the (1965-1969, and 1971-1975), that led to the creation of large industrial development areas of Mazushima, Kashima. The above developments were not free from social and environmental opposition, however, and some delay occurred as a result, coupled with the recession at the end of 1970.

1.1.3 The third generation ports (1981-)

Last twenty five years the emergence of the third generation ports due to two important international developments:

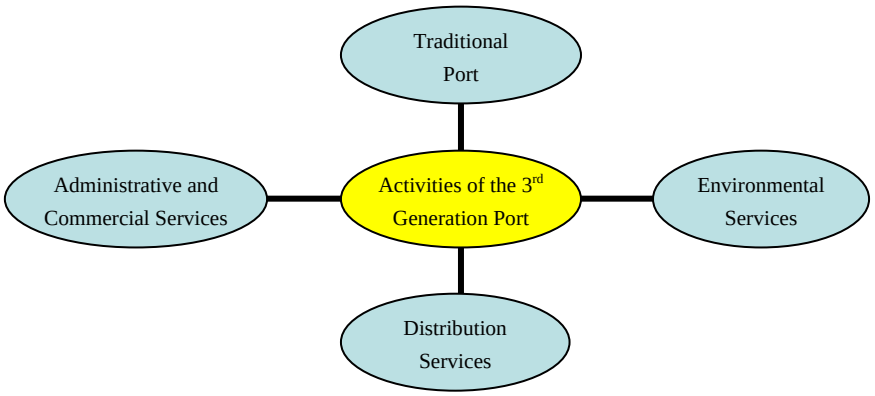
- dominance of containers,
- dominance of logistics (Goulielmos-Pardali, 2002).

This generation differs from previous ones as far as the management and development of ports are concerned. Ports since 1981 emerged as dynamic hubs on the international production and consumption network assuming an energetic supply of port services following the developments of international trade. Thus port emerged as

Business and transport hub and significant logistics point for international trade (Benson et al, 1994).

The figure 1 below shows the specialized activities offered by the third generation ports (UNCTAD, 1992).

Figure 1: The Activities of the Port of the third Generation.



Basic traditional and new port function is that of the cargo handling. This function remains even today predominant with the only difference that the cargo handling services are carried out through modernized equipment and a management system based on the technology of electronic information. The protection of the environment is essential in ports today. Vessels and cargoes have constituted for many years' sources of pollution in the port area, while these problems have become so acute nowadays that port management with emphasis on the protection of the environment is primarily required. Moreover, the period after Second World War witnessed a radical rise international trade, but also the adoption of a bureaucratic and complex administrative system that resulted to the hindrance of the rapid development of sea born trade. Ports were no exception especially in relation to document flow. Ports of this generation tried to be effective on tree counts: 1) rapid dispatch of documents, which means simplicity, comprehension by the trade and transport and computerized, using information systems and EDI, 2) Compliance with international regulation-quality, safety and 3) provision of employment. A third generation port can provide all the necessary commercial services for direct and indirect users. In many ports, banking, insurance, legal and telecommunications services have developed radically. In the third generation ports all the characteristics of the logistics have been incorporated in the traditional, industrial, administrative and commercial activities. The distribution services at a port constitute a new and typical logistics activity (Benson, 1994). On the other hand, the distribution activity which includes also warehousing constitutes a value added activity without which the transport chain would be incomplete (Cooper, 1995), (Dekker, 1993). Finally, in order for the ports to be able to satisfy the demands of the trade and to be-

come distribution center must have easy access through the inland transport networks which are of great significance for the smooth and effective operation of the port-distribution center (Dekker, 1993), (Pardali, 2001a).

Based on these facts since 1985 a tendency has been observed where less emphasis is given on the establishment of industries at ports and more on lighter activities, including those of warehousing and distribution (During the first years of the development of the industrial areas at ports 84% of land was devoted to industry. The percentage in the beginning of 1990's had dropped to 24%). In contrast, the need to facilitate multi-modal transport has led to the necessity for commercial centers for the change of the transport means. In this way, the '*containers loading centers*' were developed (if they are marine), and the '*freight villages*' (if they are overland, river or air center) (Slack, 1990).

As a result, the services offered by a third generation port are presented in table 1 while the companies and organizations that provide them and which are situated in the wider port region appear in table 2 (Pardali, 2001c).

Table 1: Services offered by a port of third generation

Services to vessels	
VTS	traditional
Pilotage	traditional
Towage	traditional
Mooring	traditional
Waste management station	new
Water supply – electricity	traditional
Bunkering	traditional
Victualling	traditional
Repairs	traditional
Dry-docking	traditional
Agency	traditional
Services to cargoes	
Loading – Unloading to and from vessels	traditional (with a new approach)
Cargo handling from dock to warehouse	traditional (with a new approach)
Temporal storage	traditional (with a new approach)
Cargo handling at warehouse	traditional (with a new approach)
Cargo handling from warehouse to port gate	traditional (with a new approach)
Loading / unloading from and to overland means of transport	»
Centers – distribution logistics services (inside the port)	new
Other services	
Information exchange (regarding vessels and cargoes)	new
Management services of the motion of overland means of transport at port	

Services relevant with the protection of the environment	new
Security services	traditional (with a new approach)
Customs services	traditional
Legal services	traditional
Insurance services	traditional
Banking services	traditional
Maritime services	traditional

Source: Pardali, 2001c.

Table 2: Enterprises and organizations located in the wider port area

Port authorities
Coast Guard stations
Cargo handling companies
Logistics companies
Pilotage companies
Towage companies
Shipping agencies
Shipping companies
Intertransport
Customs
Companies of overland means of transport connected with the port
Insurance companies
Banks
Boarding stations – tourist agencies
Waste management companies
Companies providing legal services
Commercial companies (food – bunkers – spare parts – equipment etc)
Vessel repair companies
Free zones (commercial or industrial)
Telecommunications companies

Source: Pardali, 2001c.

1.2 Economic Restructuring of Ports Market

With the increase of the volume of water-borne containers and the acquisition of greater control through strategic alliances and mergers the shipping companies have gained a dominant position (Goulielmos -Pardali, 2002) among other players. As a result the ports become more and more dependent on the dominant shipping enterprises (Pardali, 2001b), as it seems that an oligopsonistic market is being formed. In this way, the tendency for horizontal and vertical integration in the global transport and the development of

transshipment have effected a serious change in the formation of the added value in contemporary ports and have transformed the surplus of the producer (public and private cargo operators at ports) to a surplus of the consumer (ship owners, international freight forwarders etc) (Adcock, 1995; Pardali 2001b&c).

1.3. Employment impacts

Nowadays it is clear that many of industries which were located at ports in the past are now being gradually transferred for various reasons that have to do with technological change, very high prices of land around the port zone, environmental cost as well as the creation of other poles of attraction mostly in hub transport points in the inland road system. This has as a result the reduction of the industrial employment in port-cities.

Indeed, at the beginning of 1980s in the UK as well as in other industrial countries, many port-cities experienced a reduction in employment in their port area, but they regarded it as of local nature and paid no particular attention. Later it became obvious that the phenomenon of unemployment in port-cities pertained to almost all the big cities and was expressed in almost the same way. This phenomenon is not weird if we think that parts of these cities are included in the historically oldest industrial regions as we seen above. Today, the centers of the port-cities accumulate commercial stores and offices of service companies housed in modern buildings and are supported by renovating infrastructure. Close to new installations there are regions where in the past industry flourished and which old buildings and out of date equipment today characterize.

Moreover the innovations demand by shipping companies and freight forwarders from the ports lead eventually to a more and more capital intensity and labor saving production, reducing further employment (Pardali - Clomoudis, 2002). The technological change in transportation has changed the port industry itself from almost monopolistic, as it was in the past (there was protection due to the distance between ports), to competitive, as this 'distance' nowadays plays a very small, if at all, role (Pardali, 1997).

Under these circumstances significant external costs for the port community have emerged as the level of congestion and pollution becomes more and more augmented. As a result, the negative external economies of scale that are formed have led many production procedures away from the ports. This replacement of the production activities have led to the development of inland container depots which nowadays have developed economies of scale as well as economies of concentration. Under these circumstances it seems that the relationship between port and its local economy is redefined. Let us now see the case of the Port of Piraeus within the above framework.

2. The port of Piraeus and its contribution to employment in the local community

2.1 The Theory

In this part we will try to carry out the so-called impact study for the third generation (container terminal) port of Piraeus (Waters, 1977, Chang, 1978; Davis, 1983; Randall, 1988; Yochum, Agarwal, 1988; Watf and Cox, 1989; Gripaios and Gripaios, 1995; Castro and Millan, 1998, Cripaios, 1999; Musso and Benacchio and Ferrari, 2000. This means that we will examine all pure economic benefits for the local economy and community – meaning the municipality of Piraeus as well as the municipalities maintaining borders with it- arising from the existence and operation of a port. A primary candidate for regional development is of course employment.

2.2 Methodology

To systemize our research we decided to distinguish port activities in direct and indirect, as follows:

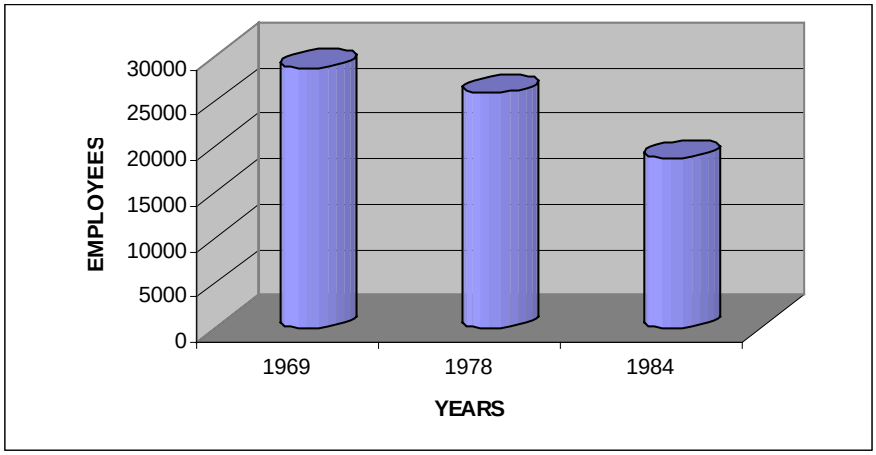
- direct port activities are those that are consider necessary for port operation,
- indirect port activities are those that are considered as depending on direct ones and derived from all other economic activities not necessary for the port operation.

After recording the economic activities that have direct and indirect connection with the port, we traced the companies that are relevant with them and are established in Piraeus and the adjoined Municipalities. Following, we distributed a questionnaire through which we identified the reasons, which have led to the companies to position themselves in the area, as well as the number of employees per economic activity.

2.3 The Port of Piraeus – Historical Account

The concentration of industry and trade around the port of Piraeus started in the mid 19th century and went on until approximately the 1930s. A new effort for development of the Piraeus industry was observed right after the war but in the mid 1970s a new gradual recession started which continues up to today (Pardali, 1990). This can be considered as a major dis - industrialization phase of the Piraeus that has occurred in 1970's and 1980's as shown by the reduction in employment (from over 31000 posts in 1969 to 21.000 in 1984), (figure 2).

Figure 2: Employment in Piraeus in the secondary sector in 1969, 1978 and 1984.



Source: National Statistic Service, Stores Report for the years 1969 and 1978 and Industries, Retailers and Trade Report 1984.

In the retail industry, from 1978 till 1984 (last year of data), there was an absolute reduction by 309 stores and 7164 jobs and in the wholesales trade there was a reduction by 1004 stores and 5035 jobs. A significant reduction (by 3038 jobs) took place also in the transport sector, which includes primarily the Piraeus shipyards. During the same period an increase in the employment opportunities in the tertiary sector was also observed. There is a clear tendency for dis-employment in the port and the city (Pardali, 1990).

2.4 Port of Piraeus Deregulation 1999.

Traditionally the port of Piraeus used to managed by the so called Port Authority, established in 1930 (law 4748). In 1999 the port took the form of a state public company or corporation in the form of Societe Anonymes (law 2699) and recently its stock has been listed in Athens Stock Exchange.

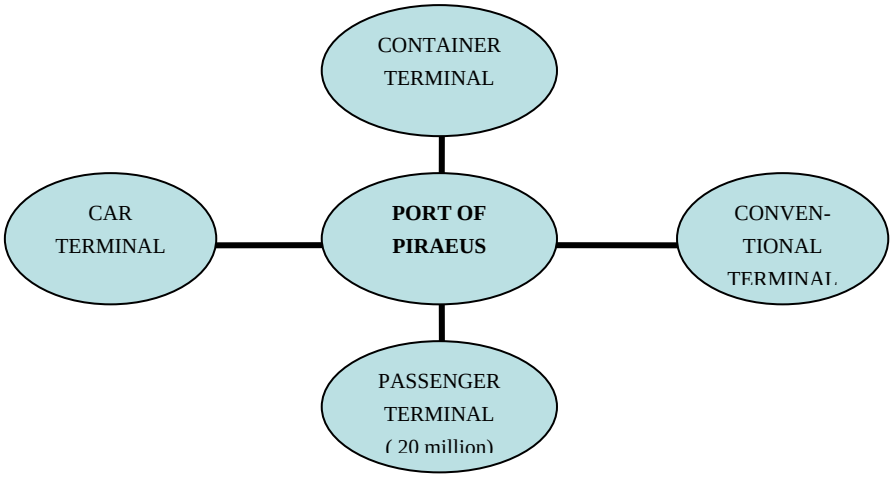
In the mind of the legislator, the main aims of the statutory evolution were: To take advantage of Greece's position at the crossroads of three Continents and make it a focal point of reference in the world of shipping. To ensure the long – term viability of the Port Authorities, as well aw of the Services staffed by their personnel; to securing the necessary funds to finance the required infrastructure and superstructure; to upgrading quality of port's competitiveness; to reforming the port economically and operationally; at a radical upgrading of all provided services through port's modernisation; at developing new activities and initiatives hitherto rendered impossible due to previous status; at attracting new funds for the dynamic development of

the port. These of course are all wishful thinking as "deregulation" was nowhere credited with such a formidable task.

2.5 Port of Piraeus Traffic

The port consist for five particular terminals as shown in figure 4.

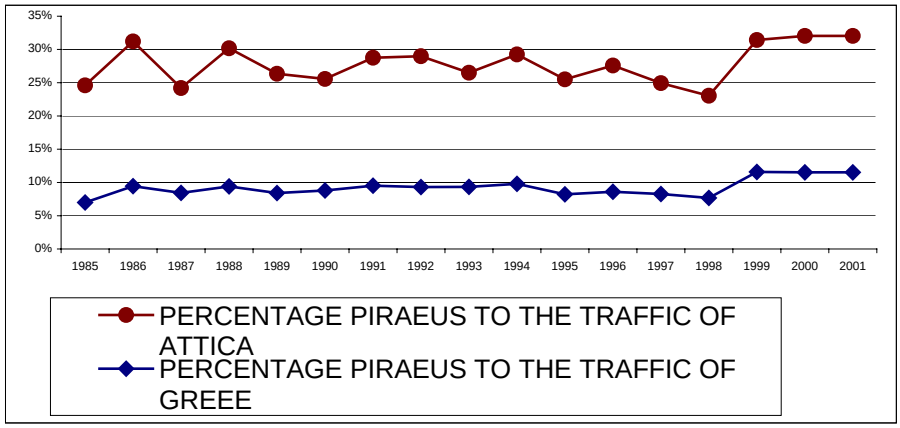
Figure 4: Port's of Piraeus Terminals



The industrial port, where nowadays consists of the shipyard terminal and the permanent floating tanks, where repair works for vessels are carried out. In the past there were in the area also several industries which used the imported bulk cargoes for raw materials (fertilizers, cement, flour industries etc.) and which for several reasons nowadays have left the area.

The port of Piraeus holds the second position as regards the cargo traffic (in tones) among all the ports in Greece. The first position belongs to the port of Elefsina. Extending the evolution of the commercial activity of the port of Piraeus in time and in relation to the total commercial port activity of the country and of the Attica district we observe a rise in the percentage of its participation to the total commercial port activity of Attica (from 24,6% in 1985 to 32% in 2001) as well as to the total commercial port activity of the whole country (from 7% in 1985 to 11,5% in 2001) (figure 5).

Figure 5: The evolution of the traffic of the port of Piraeus as a percentage to the traffic of the ports of Attica and Greece



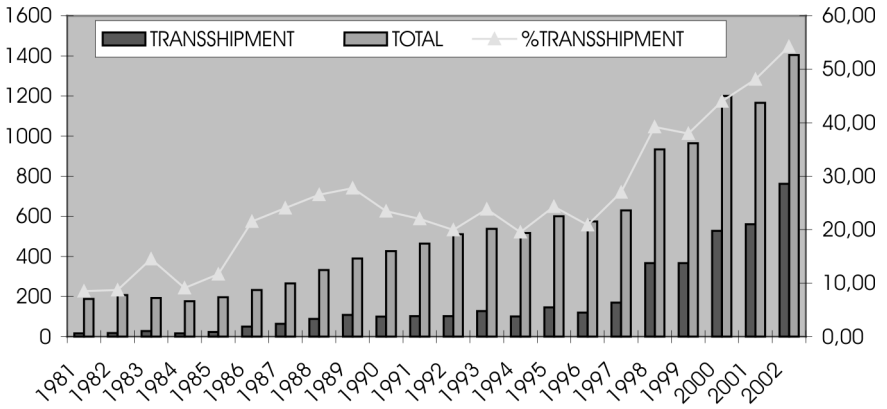
Source: National Statistic Service.

Nowadays, the port of Piraeus as regards the cargo traffic we can say that it has evolved into a port that handling containers. The general cargoes that arrive in port come both from within the country as well as from abroad. The general cargoes from abroad are more and more transported with containers (in contrast no quantity of the inland general cargoes is transported in this way). In 1983 38,5 % of the general cargoes that arrived from abroad was transported by conventional means and the 61,5% with containers. In 2002 just 7,75% of the general cargoes originating from abroad and being destined for abroad was transported by conventional means and 92,25% was transported with containers.

The significance of the port of Piraeus for the Greek economy is great as approximately 80% of the total container traffic in Greece is carried out at that port (the rest 20% is carried out at the port of Thessalonica). It is also a fact that for the traffic of containers that come from or is destined for abroad and concern the Greek inland the port of Piraeus displays an important monopolistic power. This of course does not apply to transshipments as the market in recent years has become more and more competitive – there are many ports in the area (in west as well as east Mediterranean) that offer analogous services.

It is worth noting that the increase of transshipments the last decade has been impressive. In 1990 the total traffic reached the 426.000 TEU's with the transshipments constituting the 23,5% of it. In 2002 the total traffic reached the 1.404.000 TEU's and the transshipments constituted the 54,2% (Figure 6).

Figure 6: Evolution of the container traffic from the port of Piraeus (1981-2002)



Source: Statistic Service of P.P.

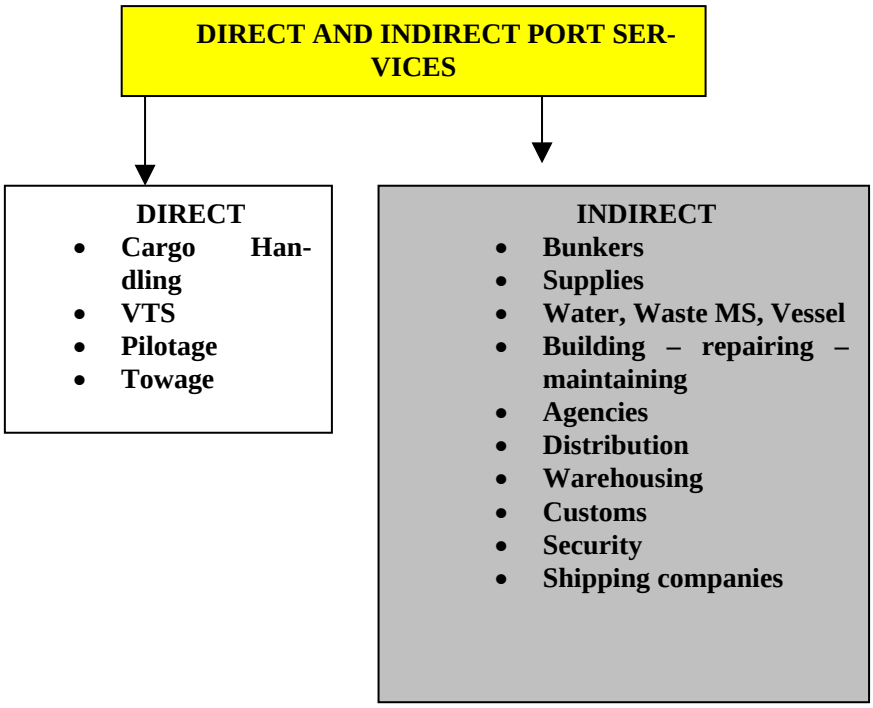
2.6 The contribution of the port of Piraeus to the employment.

2.6.1 Correlation between port's traffic and macroeconomic variables

To find out the general impact of the port for the Country, we run certain correlations between the traffic of the port and certain macroeconomic variables as follows: (1) gross domestic product expressed in the form of seaborne traffic of the country to the port of Piraeus traffic. The coefficient was high and equal to 0.91. (2) The economic active population of the country to port total cargo traffic. The coefficient was high and equal to 8.1. (3) Population of the country to total cargo traffic of port. The coefficient was high and equal to 0.81 again. (4) GDP to cargo traffic of port. The coefficient was lower than the above and equal to 0.65. The full results are shown in Appendix at the end of this paper.

2.6.2 Direct and Indirect Services Offered by Port of Piraeus and their Contribution to Employment.

As mentioned we have distinguished port services between direct and indirect as show below:



2.6.2.1 Indirect port services and employment.

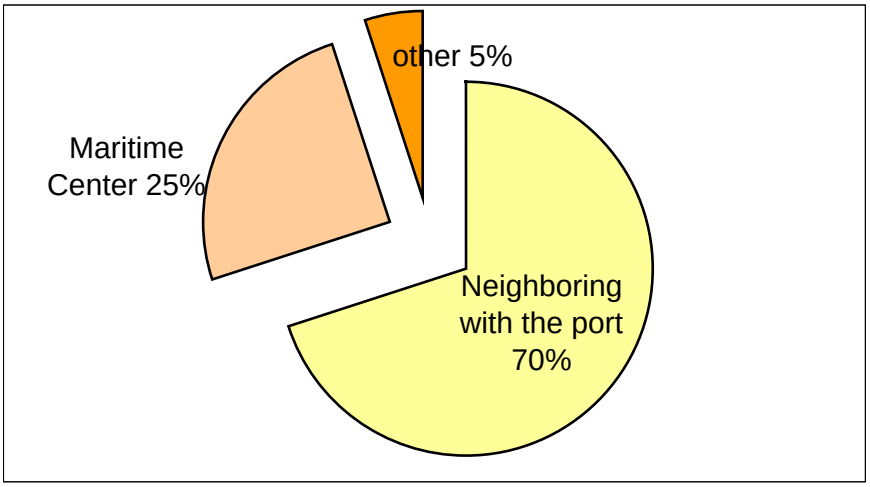
Cargo handling is one of the direct port services dealing with cargo from ship to dock/ warehousing and from there to hinterland's means of transport and vice versa. The port provides employment to 1708 persons - 1262 clerks and 446 workmen. Most of them deal with cargo handling. From these a small number deals with passenger terminal too. This can be compared with the 6128 person in 1977 (2590 staff and 3538 workers) and 4273 in 1985 (-30%). The reduction between 2003 and 1977 is -1/3,6. So, the port has lost its employment dominance for various reasons mainly due to technology used in cargo handling.

The state Vessels Traffic System coordinates the vessels traffic at the port of Piraeus. With this system the timely briefing for the marine traffic is ensured as well as the possible marine dangers, the weather forecast and the notification of other valuable maritime information. In the VTS of Piraeus 12 persons are employed. The existence of this system in Piraeus is 99% due to port vicinity.

Pilotage is a state service for ships to enter and exit successfully from the port and approaching berth. The pilotage sector in Greece comprises the competent administrative organization and, at an operational level, the network of pilotage stations located in the most important ports of the country. In Greece there are 67 pilots employed and 41 of them are employed at the pilotage station of the P.P. In total, the pilotage organization employs 95 people and the 57% of the activities concern the port of Piraeus as it is the biggest port of the country (biggest number of piloted vessels).

Towage as a service is obligatory for all vessels of 1000 GRT except for the passenger vessels and the vessels of the navy. In Greece the towage service is supplied by private companies of varied sizes. In total, in Piraeus there are 12 companies having 82 tugs. The shipboard personnel that are employed on these tugs are 350, while each of these firms employs 12-15 people ashore. As a result, the total number of the employees reaches the 500 people. The 70% of the activities of these firms has to do with the port of Piraeus (they also deal with wreck removals) and their establishment in the area depends primarily on their neighboring with the port (70%) and secondarily with the traditional maritime center (25%) (figure 7).

Figure 7: The reasons for establishment of the towage companies in the area of Piraeus.



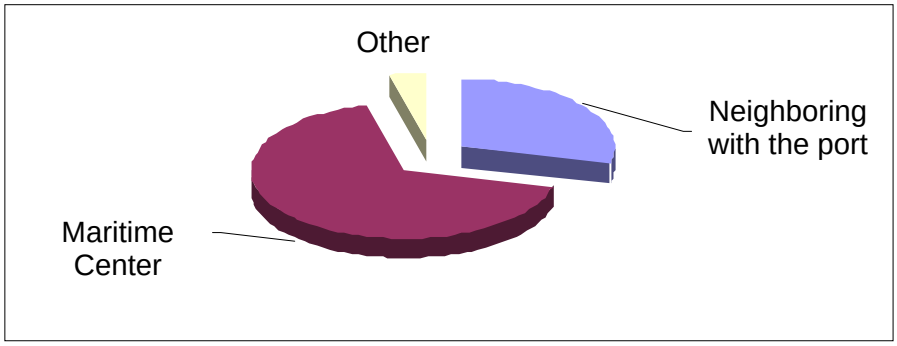
Source: Questionnaire

2.6.2.2 Indirect port services

Bunkering

Basic activity of this sector is the supplying of the vessels that arrive in port with bunkers and oils. In the wider area of the port activate 33 companies established themselves in this sector, 75% of these are located in Piraeus. The basic reason for their location in this area is considered to be the traditional role of Piraeus as a maritime center (67%) and secondly the neighboring with the port (29%) (figure 8). These companies employ approximately 330 persons. The activities of the firms that are connected with the port of Piraeus reach the 60%.

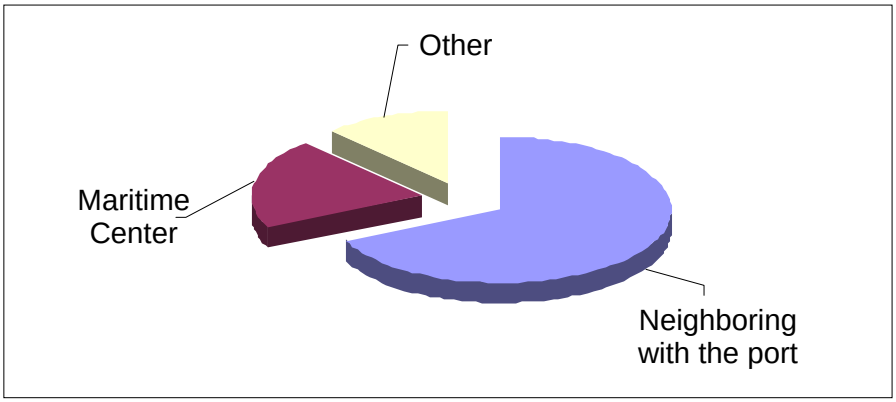
Figure 8: The reasons for the establishment of the bunkering companies in the area of Piraeus.



Source: Questionnaire

In Greece the companies supplying vessels were 284; of these 245 (86%) are located in the wider area of Piraeus. These firms employ 2500 persons; 2000 of them (80%) are employed in the companies in Piraeus, and 45% of their activities have to do with the port. The basic factor for these firms being located in the area of Piraeus is considered to be their neighboring with the port (68%) secondly the role of Piraeus as a traditional maritime center (20%) (figure 9).

Figure 9: The reasons for the establishment of companies supplying ships with food and maritime objects in the area of Piraeus



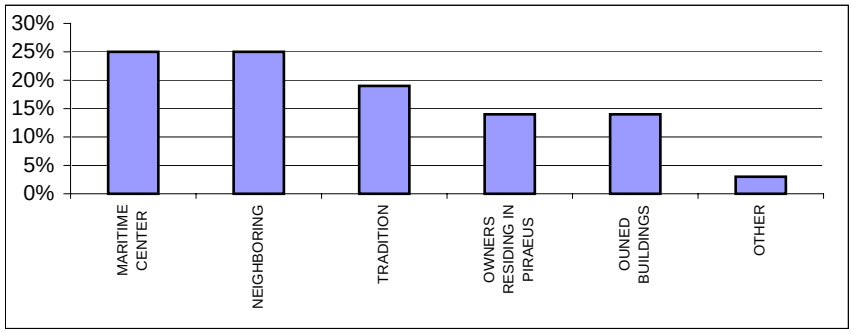
Source: Questionnaire

The water supply is a service to vessels provided by the PP (within the port area) and by two private companies (outside the port zone and mostly at anchorage). The employees in this sector are 30 persons from the P.P. and 80 persons from the private firms. The establishment of these companies in the area is 99% dependent on their neighboring with the port.

The management - collection and disposal of waste is carried out by two private companies (one deals with solid waste and the other with liquid one). These two companies deal with the port almost exclusively (80% and 99% respectively). In total, both firms employ 100 people and their establishment in the area is to 95% connected with their neighbouring with the port.

In vessel building – repairing – and ship maintenance there were in Greece 530 small and medium; companies including 2 larger ones; 520 (98%) of them located in the wider Piraeus area and 510 (96%) in Piraeus area. The location pattern is as follows: Piraeus 72%, Keratsini 15%, Drapetsona 6%, Perama 5,5%. The reasons for the establishment and stay of those companies in the wider area of Piraeus are many and are presented in figure 10. Repair etc companies give employment to 6.300 persons but most of it is of temporary nature following demand.

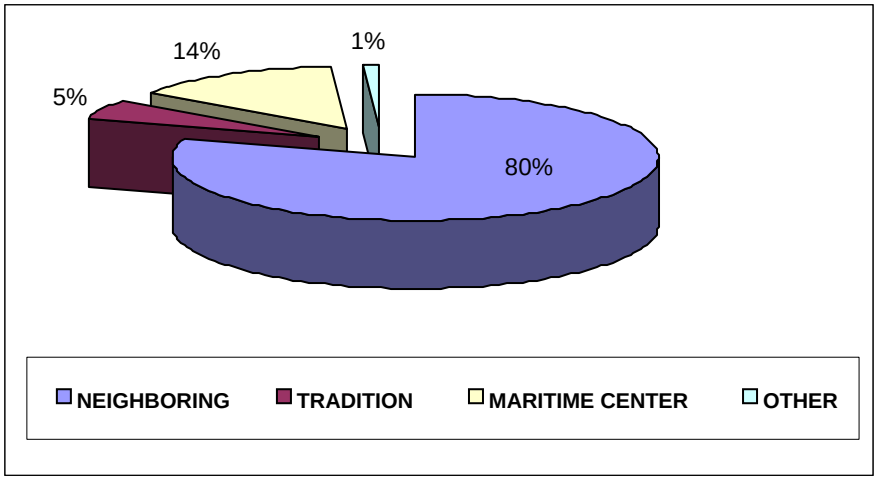
Figure 10: Reasons for establishment and stay of vessel building and repair companies in the Piraeus area



Source: Questionnaire

In Greece, in the sector of ship agency we have found 3000 companies; of these, 700 are located in Piraeus (23%) and 100 (3.3%) rest Attica; 85 % of those in Piraeus are situated in peripheral zone of the port. In the agency sector are employed 8000 persons, 4000 of which are employed in Piraeus agencies and 2000 in agencies which activate themselves in Piraeus but are situated in the wider area of the capital city. Basic reason for their establishment in Piraeus district is their neighboring with the port 80% (Figure 11).

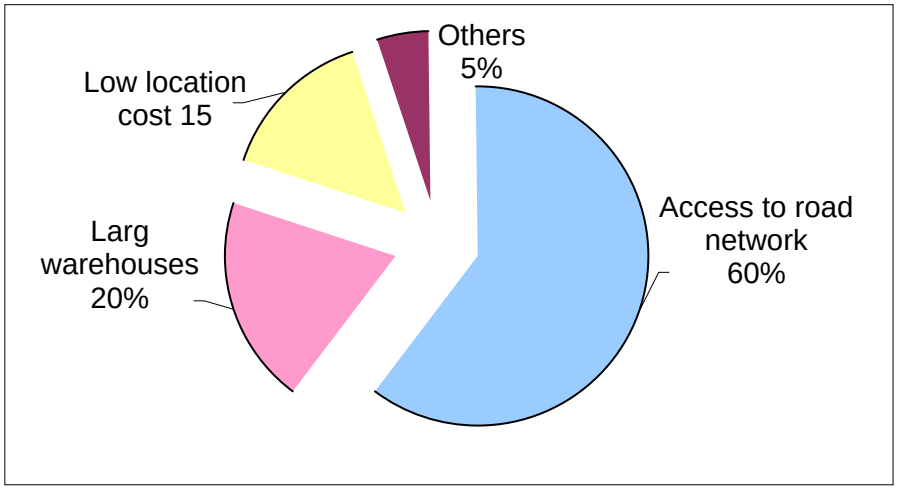
Figure 11: Reasons for establishment of the agencies companies in the Piraeus area.



Source: Questionnaire

In the past many warehousing and distribution companies were located within the terminals, but today "hub transport points" found in the national highways attract them instead. In this sector 250 companies activate and employ 2000 people. While these firms, however, do business in Piraeus (the percentage of the activities which are connected with the port reaches the 35%-40%) are located in the so- called "Thriassio field off Athens" region close to the country's road network. Their location in the aforementioned area is attributed to accessibility to the road network (60%), to the availability of big warehouses (20%) and the cheap land sites (15%). Other reasons accounted to 5% (figure 12).

Figure 12: Reasons for the relocation of distribution and warehousing companies away from the port of Piraeus

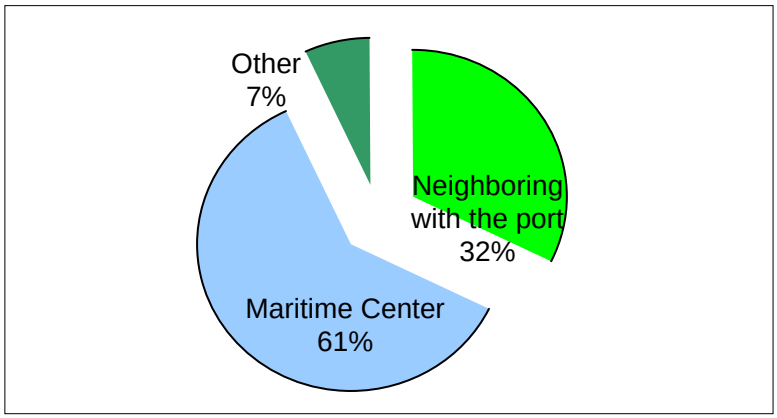


Source: Questionnaire

In Greece there are 150 Customs. In Piraeus there are 8 Customs offices and 2 special branches giving employment to 600 people. Most customs matters are deal by specialized brokers accounted to 5200 (end 1992). After joining EU in 1993 this number has been reduced to 2000 most in part time employment. The existence of customs in Piraeus is due to port (98%). Other cause 2%.

Port police is another state service for Piraeus its jurisdiction extends from Skaramagka to the 42nd kilometer Athens – Sounio road. Important reason for the establishment and activation of the Harbor Master's Office in Piraeus is the existence of the traditional maritime center (61%) and it's neighboring with thee port (32%) (figure 13).

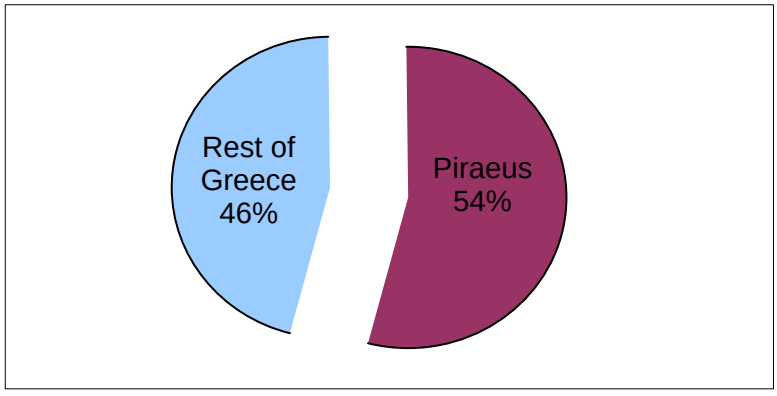
Figure 13: Reasons for the establishment of the Harbor Master's Office in Piraeus



Source: Questionnaire

In the past Piraeus was the biggest traditional maritime center of the country and gathered almost the totality of the shipping companies that were located in Greece. Today a tendency of relocation of such companies has been observed from the traditional center, as they relocate in Kifisia, Glyfada, but also in other cities of the country. Despite the above, a significant number of companies still has its headquarters in the wider region of the Piraeus (figure 14).

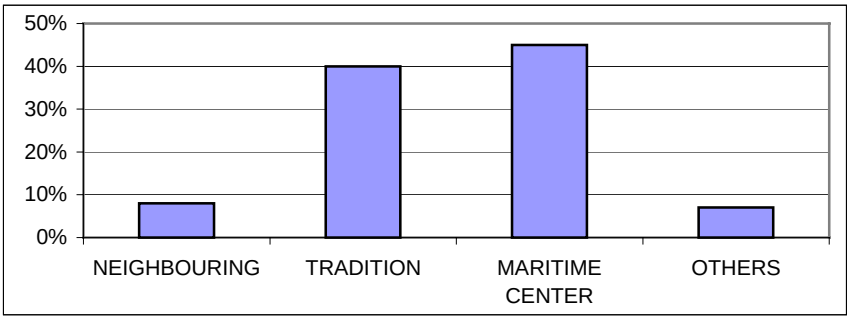
Figure 14: Location of shipping companies in Greece



Source: The annual index to Greek shipping 2002" Diorama Publishers Ltd. Edited by David Glass web: www.diorama.gr

In total, there are 6000 people employed ashore by these firms and 3500 of them are employed in Piraeus. The establishment of such companies in the area of Piraeus attributed to the mainly to tradition and the role of Piraeus as a maritime center (85%), while their neighboring with the port has little to do with it (7%) (figure 15).

Figure 15: Reasons for establishment of shipping companies in Piraeus



Source: Questionnaire

Companies that have indirect relationship with the port and create employment opportunities for the region are Banks and Insurance companies as well as companies that supply legal services. Their big number, however, and their preoccupation with also other subjects apart from maritime ones has prevented us from obtaining a clear and substantiated picture of the size of their activities that is connected with the port and as a result the employment opportunities that are created in this way.

Conclusions

As we have seen, the two latest generations of ports, emerged since 1960 have a radical different pattern. The one used to attract within or near industries that have provided employment and the impact was strong given also the labor intensive techniques of the time. As time went by and as economic development, communications and computers proceeded and as also cargoes transformed at an increasing pace from non-containerized to containerized, ports lost their traditional role to cause a concentration of industry near them.

Nowadays, in ports which handling containers, while the activity increases continuously and more and more goods are transported, these goods do not remain in the port and do not initiate economic activities, employment and added value. The economical consequences of the ports seem to be expanding more and more beyond the local economic region of the ports, on a

national and sometimes even international level; while at the same time the negative external economies increase and burden the local economic system.

The port of Piraeus is already a third generation port. Almost the totality of its cargo traffic regards general cargoes in containers. These cargoes are either destined for or come from the Greek inland (imports – exports) and a significant number (55%) of the traffic of containers regard transshipments.

This port is not considered nowadays a pole of attraction for the industry as already since the 1980s the de-industrialization of the city of Piraeus has taken place to a great extent. In contrast, the tertiary sector is being developed in the city today. The contemporary port which handling containers while impressively increasing its activity, does not appear to increase also employment in the local community, as the number of employees in the port enterprise continuously decreases and many companies which were traditionally situated in the port area nowadays seem to be relocating elsewhere or to stop their businesses.

We investigate the case of Port of Piraeus through an impact study and we have seen PP service per service and calculated some 33.000 persons to employed as a result of sea transport including port. This used to be much higher in the past and since 1969 in the wider area of the city. The old idea of collecting cargo from the port has now been replaced with cargo reaching final demand as near as possible due to time and cost and convenience.

Today in Piraeus the direct port services are supplied by 15 companies and create approximately 2300 job opportunities. The companies that supply these services are situated in the area of Piraeus due to their neighboring with the port (100%). The indirect port services are supplied by 2082 private companies and two public organizations (Harbor Master's Office and the Customs) and they employ 30500 persons. The firms that supply, water, manage waste, supply vessels with bunkers and other, the customs brokers, the agencies and the customs present as a basic reason for their establishment in the Piraeus area their neighboring with the port (70%-100%). The warehousing companies outside P.P. appear not to be attracted by the port of Piraeus, as they preferred to locate close to the national highway, at so called "Thriasio" region. The reasons responsible for their establishment in the aforementioned area are the access to the road network (60%), and the low cost of establishment (15%). The vessel building and repairs companies, which for reasons of tradition have gathered in the area of Piraeus, do not consider today their neighboring with the port a significant reason for their location in the region (25%).

The shipping companies, which were once situated in the area around the port, are distancing themselves. Nowadays their location in the area is interrelated with tradition and the role of Piraeus as a maritime center (85%), while their neighboring with the port is of little significance (7%).

Finally this paper calculated the correlation that may exist between macro-economic variables and port traffic. The port now cannot de judged for its performance at local level but at economy's level. This however to be done properly needs the modern specialization of micro-econometrics as it is difficult to measure port's contribution to country's employment not only at its locality. Port traffic correlations to "marine GDP", economic active population, population in general gave 0.81 and 0.91 coefficients. Correlation to GDP gave only 0.65.

APPENDIX

Correlation details of regression run between PP total cargo traffic with certain basic economic variables of the Greek Economy, 2002.

		POP	GDP	GDP-MT	EC-ACT-P	TOTAL-T
POP (population)	Pearson Correlation	1,000	0,821	0,928	0,877	0,808
	Sig. (2-tailed)	,	0,000	0,000	0,000	0,000
	N	17,000	17,000	17,000	17,000	17,000
GDP	Pearson Correlation	0,821	1,000	0,771	0,731	0,646
	Sig. (2-tailed)	0,000	,	0,000	0,001	0,005
	N	17,000	17,000	17,000	17,000	17,000
GDP-MT (GDP marine)	Pearson Correlation	0,928	0,771	1,000	0,921	0,913
	Sig. (2-tailed)	0,000	0,000	,	0,000	0,000
	N	17,000	17,000	17,000	17,000	17,000
EC-ACT- P (economic active population)	Pearson Correlation	0,877	0,731	0,921	1,000	0,811
	Sig. (2-tailed)	0,000	0,001	0,000	,	0,000
	N	17,000	17,000	17,000	18,000	18,000
TOTAL (total cargo traffic PP)	Pearson Correlation	0,808	0,646	0,913	0,811	1,000
	Sig. (2-tailed)	0,000	0,005	0,000	0,000	,
	N	17,000	17,000	17,000	18,000	18,000

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